



# Virginia Chesapeake Bay TMDL Stakeholder Advisory Group

Established by the  
Virginia Secretary of Natural Resources

Initial Meeting  
December 17, 2009

# Virginia Chesapeake Bay TMDL Stakeholder Advisory Group Membership

## Wastewater

- Virginia Association of Municipal Wastewater Agencies (2)
- Virginia Manufacturers Association (2)
- U.S. Department of the Navy

## Developed and Developing Lands

- Homebuilders Association of Virginia
- Virginia Municipal Stormwater Association (VAMSA)
- James River Green Building Council
- Virginia Association of Planning District Commissions (2)
- The Virginia Fountainhead Alliance

# Virginia Chesapeake Bay TMDL Stakeholder Advisory Group Membership

## Ag Industry

- Virginia Agribusiness Council
- Virginia Farm Bureau Federation
- Virginia Poultry Federation
- Virginia State Dairymen's Association
- Virginia Grain Producers Association

## Local/Federal Govt

- Virginia Municipal League
- Virginia Association of Counties
- Rappahannock River Basin Commission
- Rivanna River Basin Commission
- Natural Resources Conservation Service
- Chesapeake Bay Program Local Government Advisory Committee – VA Member

# Virginia Chesapeake Bay TMDL Stakeholder Advisory Group Membership

## Conservation/Environmental

- **Chesapeake Bay Foundation**
- **James River Association**
- **Friends of the Rappahannock**
- **Southern Environmental Law Center**
- **Shenandoah Riverkeeper**
- **Wetlands Watch**
- **Virginia Seafood Council**
- **Chesapeake Bay Program Citizen Advisory Committee – VA Member**

# Virginia Chesapeake Bay TMDL Stakeholder Advisory Group Membership

## Academia

- **Chesapeake Bay Program Scientific and Technical Advisory Committee – VA Member**

## Other

- **Virginia Waterman's Association**
- **Virginia Association of Soil and Water Conservation Districts**
- **Chesapeake Bay Commission**

## Staff

- **SNR Office**
- **DEQ**
- **DCR**
- **VDH**

# Virginia TMDL Stakeholder Advisory Group

## Charge

- Provide for a transparent process for development of Virginia's TMDL and Watershed Implementation Plan for nitrogen, phosphorus and sediment reductions
- Provide a forum for open discussion on TMDL-related issues
- Advise the Commonwealth on pollutant load reductions by sector and resulting sector load allocations to meet the interim and final TMDL loads
- Provide a venue for delivery, review, and vetting of specific information and verification of current and future potential pollution reductions by sector
- Advise the Commonwealth on the ability of current, expanded, and new programs to achieve needed pollution reductions
- Review and suggest new strategic approaches to achieve needed pollution reductions

# Virginia TMDL Stakeholder Advisory Group

## **Process**

- 4 meetings (anticipated) Dec. 17, Early February, Early April, July (if necessary)
- Additional electronic information exchange between meetings
- Preliminary framework for Draft Phase I TMDL and Watershed Implementation Plan for group review by early May (final draft by early July)
- Outside of Stakeholder Group Meetings - Continuous opportunity for open dialogue and information exchange between group members and agency staff



# **Virginia's Approach to Developing the Chesapeake Bay TMDL Watershed Implementation Plan**

Department of Conservation and Recreation  
Department of Environmental Quality  
Secretary of Natural Resources  
Commonwealth of Virginia

# **Watershed Implementation Plan Expectations by EPA**

- Identify allowable loads by major river basin, tidal segment watershed, county and pollutant source sector
- Identify Program gaps and strategy
- Commit to develop and implement 2-year milestones at the county scale
- Develop contingencies

# Successes to Date

- Much has been done using voluntary, incentive, and regulatory programs
- 1985 Loads
  - 102 million pounds Nitrogen
  - 12.4 million pounds Phosphorus
- 2008 Estimated Loads
  - 72.8 million pounds Nitrogen
  - 7.2 million pounds Phosphorus



# The Challenge Ahead

- To meet water quality standards in the Chesapeake Bay and its tidal rivers, **there is more to do**
- Low hanging fruit – mostly gone
- Future reductions will be harder
- We all have a role

# What We Need to Achieve (and Maintain)

## Virginia Bay Draft Initial Target Loads

- 59.2 million pounds Nitrogen
- 7.05 million pounds Phosphorus
- Sediment – not known until early 2010
- These targets are very likely to change

# Load Uncertainties

- Initial draft target loads provided by EPA based on dissolved oxygen **only**
- Impacts on target loads from water quality standards for bay grasses, water clarity and other localized issues not yet determined
- Will be spring 2010 before target loads are adjusted for these factors

# Vision for Virginia's Watershed Implementation Plan

- Focuses on “how” as well as the “how much”
- Equity between sectors
- Is relevant locally
- Uses adaptive management

# Actively engage stakeholders and the public

- Virginia Bay TMDL Webinar (October 2009)
- Initial EPA Public Meetings (December 2009)
- Go to Individual stakeholder meetings (2010)
- Stakeholder Advisory Group (early 2010)
- Use Interactive web-based tools (Ongoing)
- EPA Public Comment Period (Aug. – Oct. 2010)
- Additional outreach as necessary

# A Challenging Timeframe

## EPA deadlines:

### Phase I – Draft allocations and state strategies

- June 1, 2010 - Preliminary phase I plan by source sector and impaired segment drainage area
- August 1, 2010 – Draft phase I plan
- November 1, 2010 – Final phase I plan

### Phase II – Local target loads and action plans

- June 1, 2011 – Draft phase II plan
- November 1, 2011 – Final phase II plan submitted to EPA

# Phase I – Draft Allocations by Source Sector and State Strategies

- State staff to consult with sector experts (urban, agriculture, septic)
- Staff will develop projected BMP coverage levels
- Draft reviewed and refined following input by Stakeholder Group
- May be used to derive potential nutrient and sediment load reductions and develop State strategies



# Phase I – Draft Allocations by Source Sector

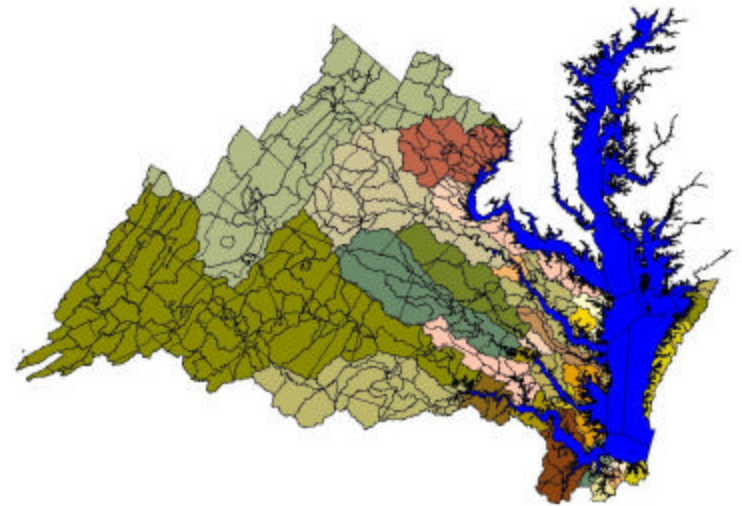
- States must develop Plans to demonstrate to EPA “reasonable assurance” that allocations assigned to each source sector will be met
- Allocations will need to be assigned to these source sectors within each basin/watershed

WLAs	LAs
Point Source: Municipal & Industrial Wastewater [Individual WLAs for Sigs]	Agriculture
Point Source: Wastewater [Aggregated WLAs for Non-sigs]	Urban/Sub Runoff Non-MS4s
Point Source: Wastewater CSOs	Forest
Point Source: Storm Water Industrial	Atmospheric Deposition
Point Source: Storm Water Construction	Onsite
Point Source: Storm Water MS4s	
Point Source: CAFOs	

# Phase I – Draft Allocations Made to Individual Watershed Segments

- State agency staff will distribute the allowable loads into the various impaired segments and among the various sources
- Land use data (cropland, developed land, etc.) along with BMP coverage projections and resulting load reductions will be used
- Draft reviewed and refined following input by Stakeholder Group

## Virginia's 35 Bay Watershed Segments



# Content of WIP Allocations

Table B2. Format for Submitting Phase I Watershed Implementation Plan Outputs to EPA for Verification<sup>a</sup>

St.	Maj. Basin	Impaired Segment Drainage	Unique Code	Source Sector <sup>b</sup>	Type <sup>c</sup>	NPDES Permit	2010 Ac. <sup>d</sup>	2008 Load <sup>d</sup>	2011 <sup>e</sup>	2013 <sup>e</sup>	2015 <sup>e</sup>	2017 Interim Target <sup>e</sup>	2019 <sup>e,f</sup>	2021 <sup>e,f</sup>	2023 <sup>e,f</sup>	2025 Final Target/TMDL <sup>e,f</sup>
MD	W. Shore	PAXTF	MWPTF	Agriculture-CAFO	Agg. WLA											
				Agriculture-CAFO	Ind. WLA	MD356913										
				Agriculture	LA											
				<b>Subtotal: Agriculture</b>												
				Wastewater: POTW#1	Ind. WLA	MD012452										
				Wastewater: POTW#2	Ind. WLA	MD013943										
				Wastewater: Indus #1	Ind. WLA	MD821672										
				Wastewater: Indus #2	Ind. WLA	MD853653										
				<b>Subtotal: Wastewater</b>												
				Onsite	LA											
				Urb/Suburb Runoff: MS4	Agg. WLA	MD546195										
				Urb/Suburb Runoff: Non-MS4	LA											
				Urb/Suburb Runoff: MS4	Ind. WLA	MD892645										
				Industrial Stormwater	Agg. WLA											
				Industrial Stormwater	Ind. WLA	MD246139										
				Construction	Agg. WLA											
				<b>Subtotal: Urb/Suburb</b>												
				Forest	LA											
MD	W. Shore	SEVMH	MWSeM	Agriculture-CAFO	Agg. WLA	MD382614										
				Agriculture	LA											
				<b>Subtotal: Agriculture</b>												
				Wastewater: POTW#1	Ind. WLA	MD083699										
				Wastewater: POTW#2	Ind. WLA	MD054732										
				Wastewater: Indus #1	Ind. WLA	MD836679										
				Wastewater: Indus #2	Ind. WLA	MD854469										
				<b>Subtotal: Wastewater</b>												
				Onsite	LA											
				Urb/Suburb Runoff: MS4	Agg. WLA	MD588578										
				Urb/Suburb Runoff: Non-MS4	LA											
				<b>Subtotal: Urb/Suburb</b>												
				Forest	LA											
...																
MD	W. Shore			Reserve for Growth	WLA/LA											
MD	W. Shore		MW	Total												

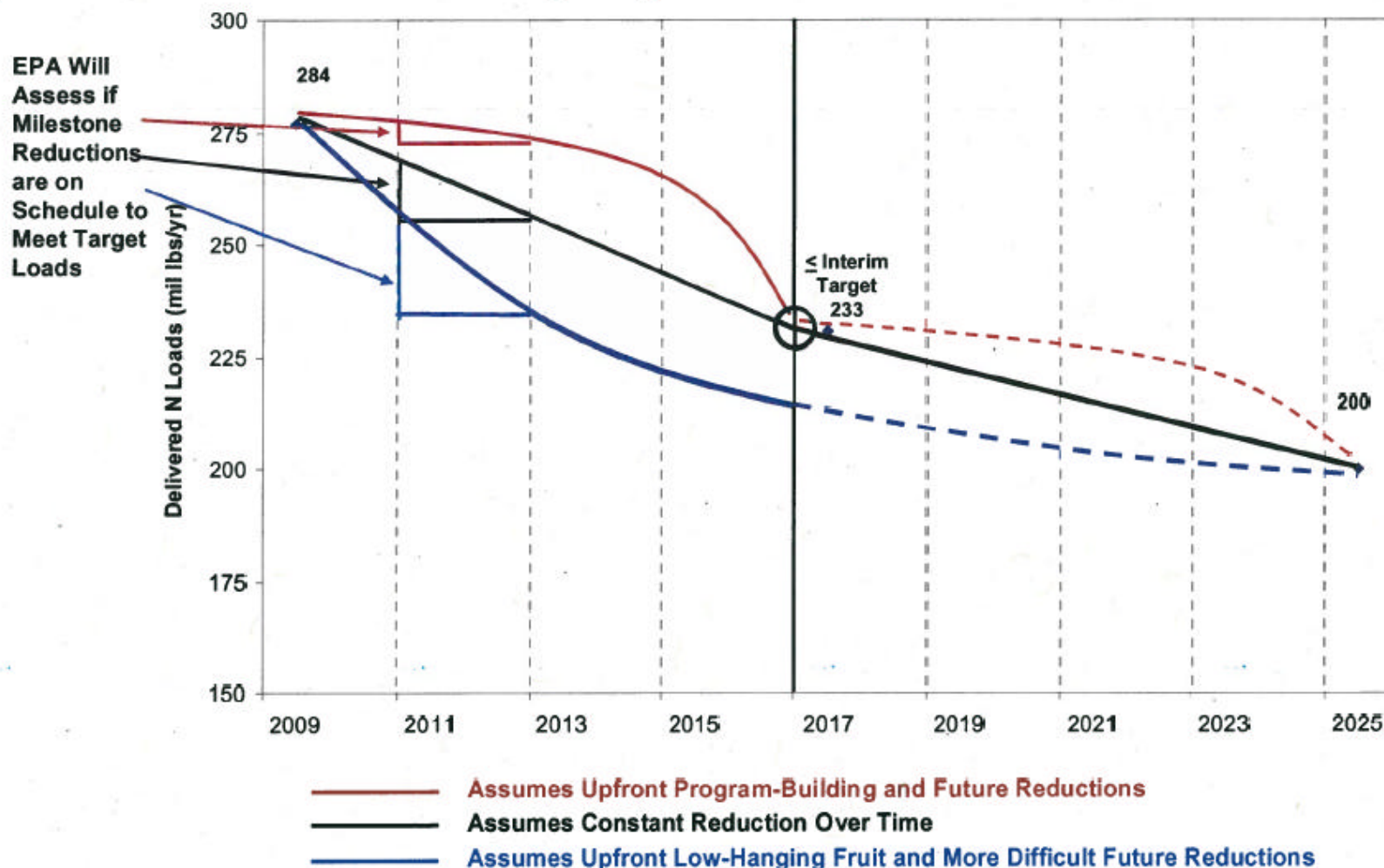
<sup>a</sup> Format allows jurisdictions to collapse and summarize loads by State/District, major basin within the State/District, source sector, regulatory status under NPDES program, or any combination thereof.

<sup>b</sup> Atmospheric deposition of nitrogen to the watershed is not listed as a separate source sector because its loads and reductions are assumed within the land uses and source sectors where it is deposited in the watershed (forest, agriculture, urban/suburban). EPA is accountable for ensuring that these assumed reductions occur due to development, implementation of, and compliance with rules and regulations under the federal Clean Air Act. The Chesapeake Bay Program Office (CBPO) will inform jurisdictions of what portion of a load reduction will occur as a result of decreased atmospheric deposition. The complete table will also include a separate row for loads from atmospheric deposition of nitrogen directly to tidal waters, for which EPA will also be held accountable.

<sup>c</sup> If requested, CBPO can provide assistance for dividing source sectors such as stormwater and agriculture among wasteload allocations (WLAs) and load allocations (LAs). In its September 11, 2008 letter to the Principals' Staff Committee, EPA stated that it will establish within the Bay TMDL individual wasteload allocations for significant wastewater facilities in the three States with tidal waters (MD, VA, DE) and the

# Reduction Schedule With Interim and Final Targets

Figure B2. Basinwide Interim and Final Nitrogen Targets with Alternative Reduction Schedules



# Target Load Refinements

- State may exchange target loads from one basin to another
- State may exchange N & P target loads within a basin
- Bottom Line: After exchanges, must meet water quality standards

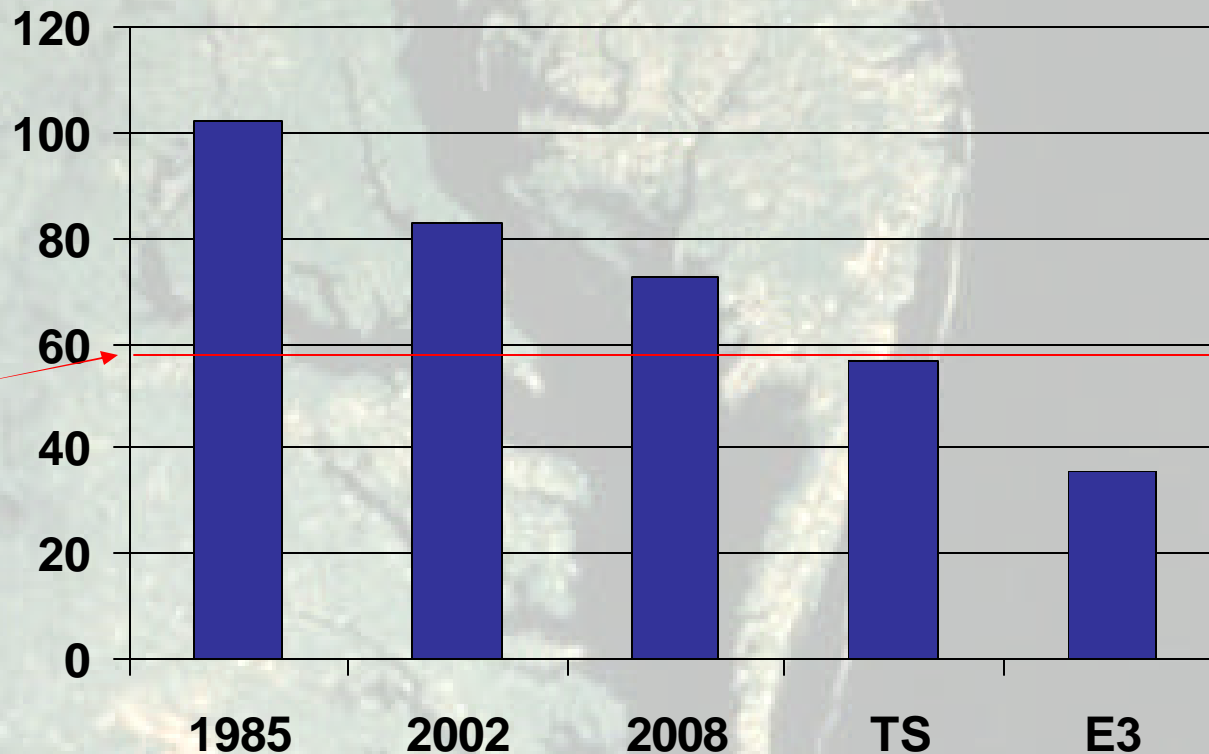
**THESE  
TARGET LOADS  
FOR VIRGINIA  
EXPECTED TO  
CHANGE!!**

Table 2. Preliminary Chesapeake Bay Watershed Nitrogen and Phosphorus Working Target Loads by Jurisdiction <sup>2</sup>		
Jurisdiction/Basin	Nitrogen Target Load (million pounds per year)	Phosphorus Target Load (million pounds per year)
PENNSYLVANIA		
Susquehanna	68.81	2.69
Potomac	4.83	0.47
PA Total	73.64	3.16
MARYLAND		
Susquehanna	0.83	0.05
Eastern Shore	12.81	1.24
Western Shore	10.15	0.62
Patuxent	3.15	0.24
Potomac	14.10	0.89
MD Total	41.04	3.04
VIRGINIA		
Eastern Shore	1.61	0.15
Potomac	16.09	1.97
VA Total	17.70	2.12
TOTAL WORKING TARGET LOADS		
	132.38	8.32

# Virginia Nitrogen Loads

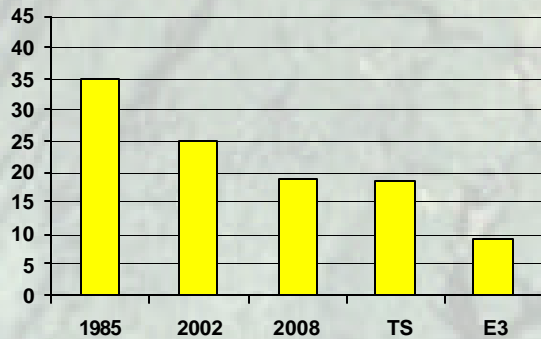
[million lbs/yr]

Working  
Target  
Load –  
59.22 MPY  
for Bay  
TMDLs  
EXPECTED  
TO  
CHANGE!!

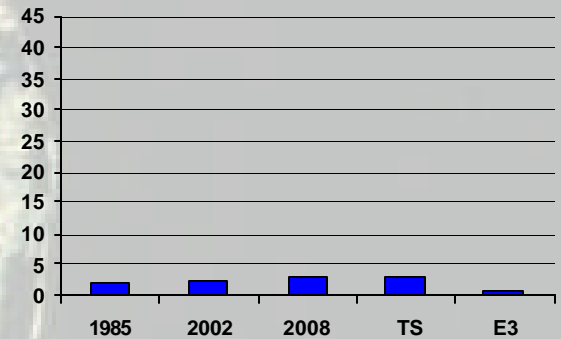


# Virginia Nitrogen Loads By Source Sectors [million lbs/yr]

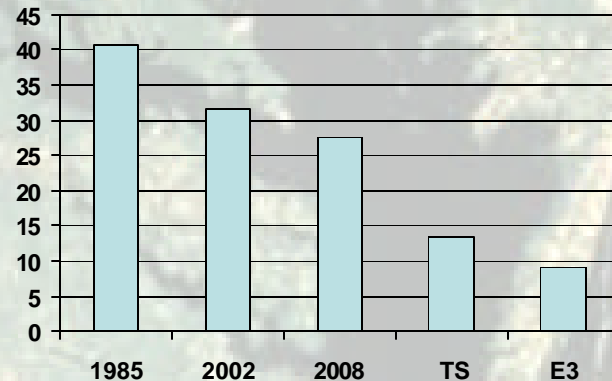
## Wastewater



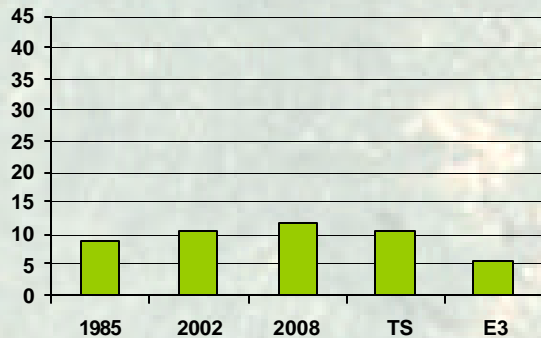
## Septic



## Agriculture



## Urban Runoff

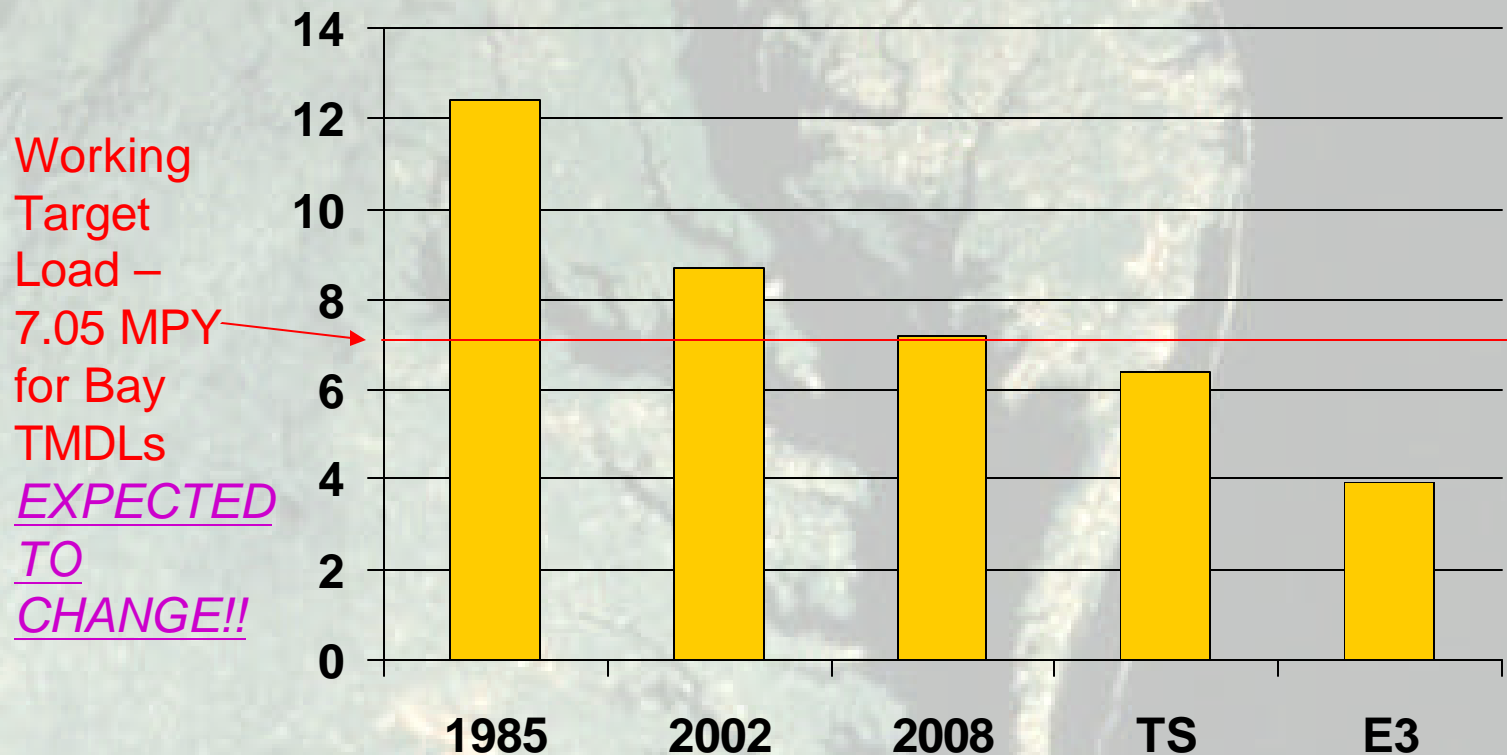


## Forest



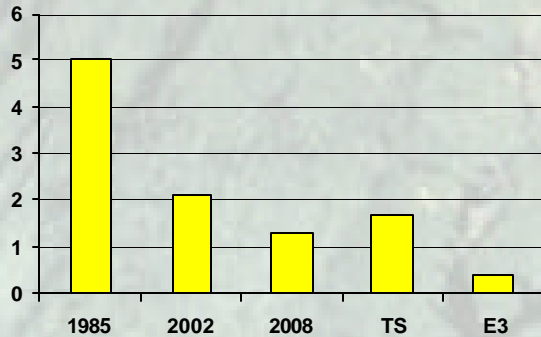
# Virginia Phosphorus Loads

[million lbs/yr]

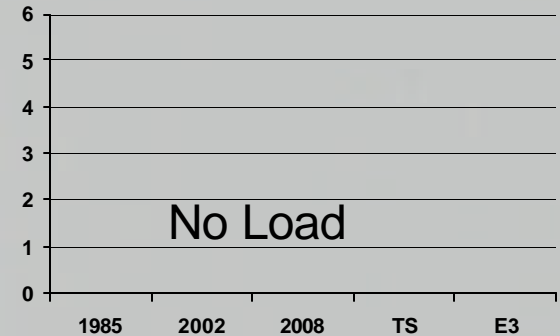


# Virginia Phosphorus Loads By Source Sectors [million lbs/yr]

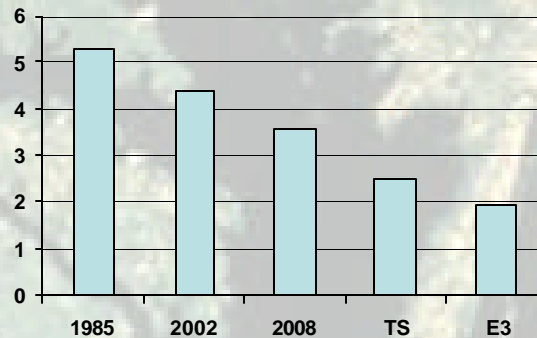
## Wastewater



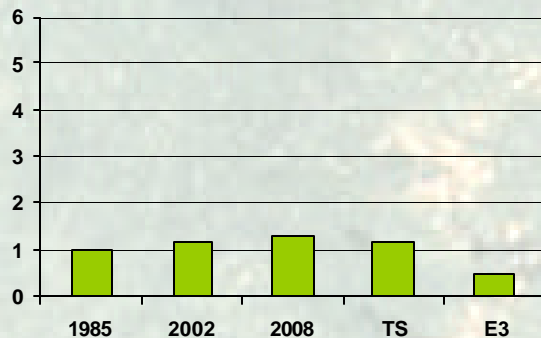
## Septic



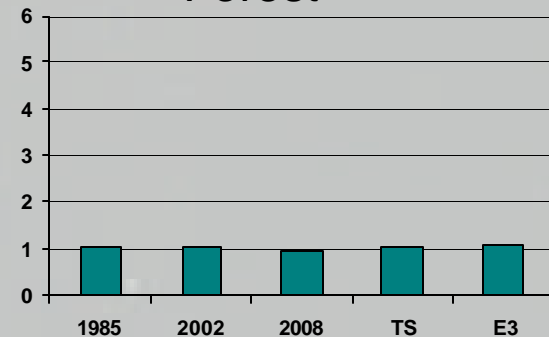
## Agriculture



## Urban Runoff



## Forest



# What is E3 ?

- Theoretical maximum level of managed controls on load sources
- Everything, Everywhere, by Everybody
- Only used for comparative purposes to frame “the far side”

# Examples of E3 Levels Wastewater

- Point source municipal significant dischargers
  - 3 mg/L N and 0.1 mg/L P at design flow
- Point source municipal non-significants
  - 8 mg/L N and 2 mg/L P at design flow
- Point Source Industrial significant dischargers
  - Prorated reduction based on significant municipals from trib strategies to E3
- CSOs
  - Full implementation of CSO control plan

# Examples of E3 Levels Septics

- 10 % of all current septic systems connected to wastewater treatment plans
- Remaining septic systems employ denitrification technologies and maintained to achieve a 2.3 TN per person per year load
- Maintained through a management entity or maintenance contract

# Examples of E3 Levels

## Agriculture

- All row crops are conservation tilled (incl. veg & tob)
- Conservation plans fully implemented on all ag land
- All land under enhanced nutrient management applications – rates below recommended and precision techniques
- All riparian areas are buffered in forest
- 25% of ag land converted to wetlands or buffers
- Early planted cover crops on all relevant row crops
- Livestock are excluded from all streams
- Phytase to reduce P in manure by 32%
- Etc.

# Examples of E3 Levels

## Urban

- All riparian buffer without natural vegetation is buffered as forest
- All old and recent development retrofitted with a suite of practices resulting in N, P, S reductions of 27%, 40% and 65%
- E&S controls on construction sites reduces nutrient and sediment loss by 70%
- All pervious urban acres under nutrient management
- Low impact development applied to all new development
- Etc.

# Evaluation of Current Program Capacity

- Cataloging and brief description of all current relevant programs
- Expected capacity of present legal, regulatory, programmatic, financial, staffing and technical capacity to deliver target loads

# Closing the Gap

- How much additional reduction can be achieved by enhancing current incentive programs, regulations and legal authorities and how?
- Evaluate the need for new incentive programs, new legislative authorities, market-based tools, technical or financial assistance

# Accounting For Growth

- Provisions for growth must be addressed
- Possible growth in wastewater discharges, biosolids generated, urban development, new or more intensive farms, additional septic systems

# Accounting For Growth Potential Options

- **Build in a number** for load growth for different sectors into total allowable loads (will require greater reductions in current loads)
- **Transfer the allowable loads** from the previous land use to the converted land use (example: from forest and agriculture to developed)
- **Require greater levels of treatment** as time goes on (example: wastewater treatment poundage caps – as flows increase, discharge concentrations must drop)
- **Offsets** – Owner of proposed new load must find an offset that reduces current required loads from other sources

# Schedule for Developing Phase I WIPs

- **Nov. 4, 2009** – EPA guidance issued
- **Dec. 17, 2009** – 1st meeting of SAG
- **Mid-Fed. 2010** – 2<sup>nd</sup> meeting of SAG; discuss prelim. source sector working targets
- **April 30, 2010** – CBP agreement on draft nutrient and sediment target loads
- **Mid-May 2010** – 3<sup>rd</sup> meeting of SAG; finalize draft source sector working targets & discuss draft WIP
- **June 1, 2010** - Submit preliminary Phase I WIP to EPA
- **July 2010** – 4<sup>th</sup> meeting of SAG
- **August 1, 2010** – Submit draft Phase 1 WIP to EPA
- **Nov. 1, 2010** – Submit FINAL Phase I WIP to EPA

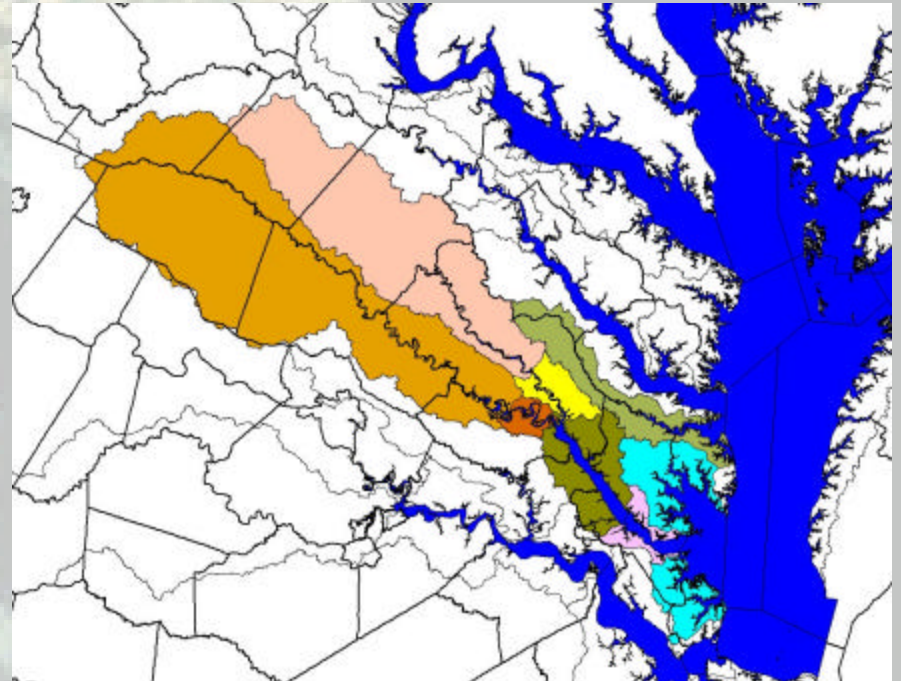
# What Comes After Phase I ?

- Phase II of the Watershed Implementation Plan
- 2-Year Milestones

# Phase II - Local Target Loads and Action Plans

- Will work closely with local stakeholders to identify specific controls and practices to be implemented
- Agencies will initiate work later in 2010
- Due by November 2011

York River Segments and Jurisdictions



# 2-Year Milestone Process

- Biennial Milestones –Use adaptive management; identify specific actions needed to maintain schedule
- Continue to engage stakeholders and public
- Monitor and evaluate progress
- Next milestone period – January 1, 2012 to December 31, 2013 to be completed with phase II plan

# Want to find out more?

EPA

<http://www.epa.gov/chesapeakebaytmdl/>

VA-DEQ

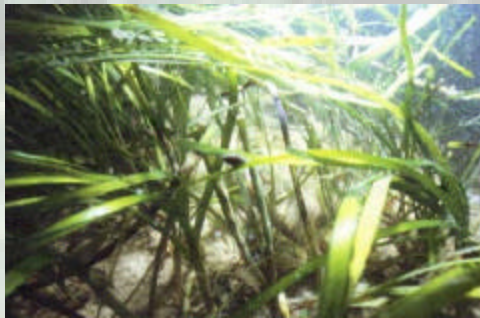
<http://www.deq.virginia.gov/tmdl/chesapeakebay.html>

VA-DCR

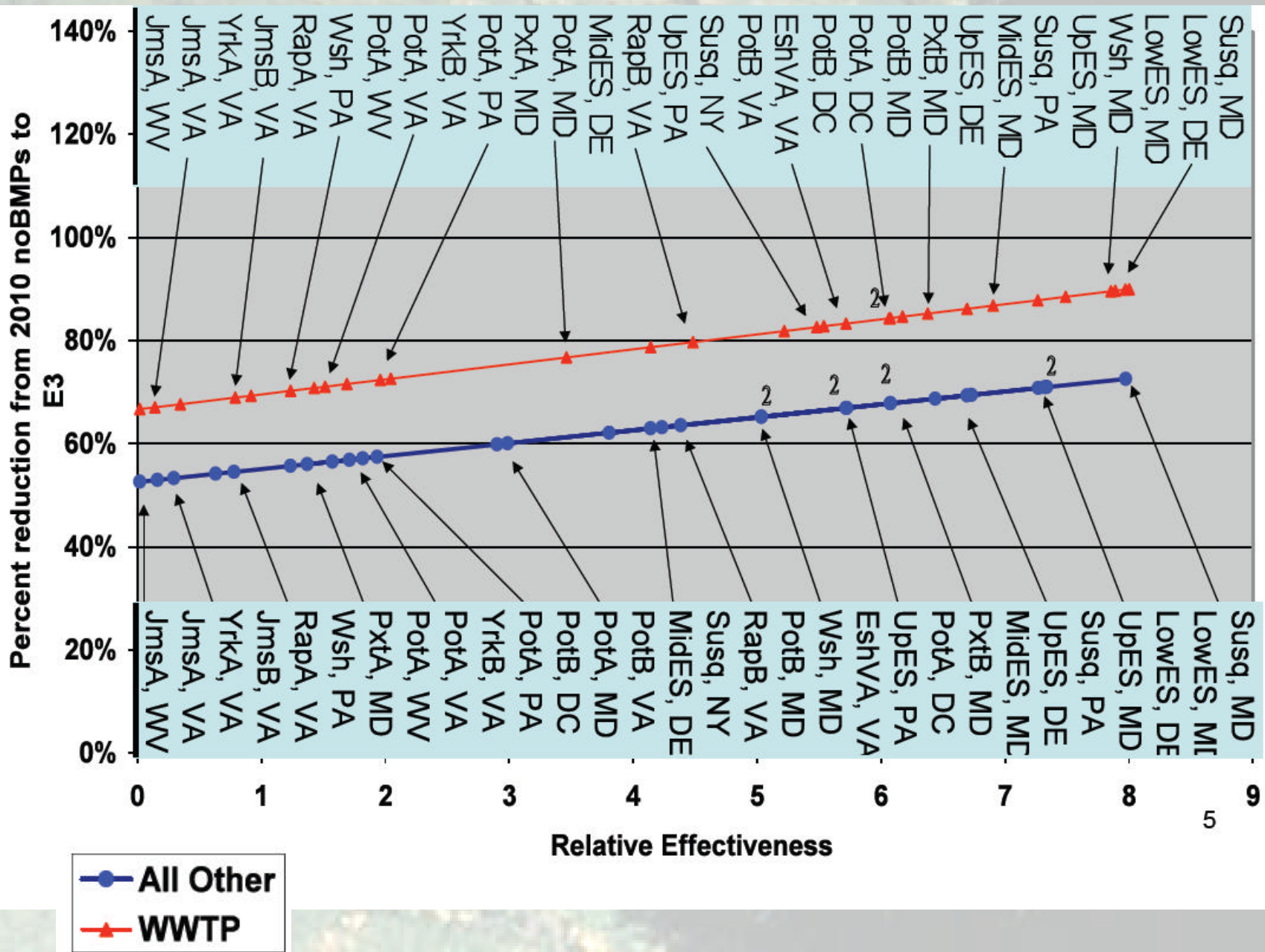
[http://www.dcr.virginia.gov/soil\\_and\\_water/baytmdl.shtml](http://www.dcr.virginia.gov/soil_and_water/baytmdl.shtml)



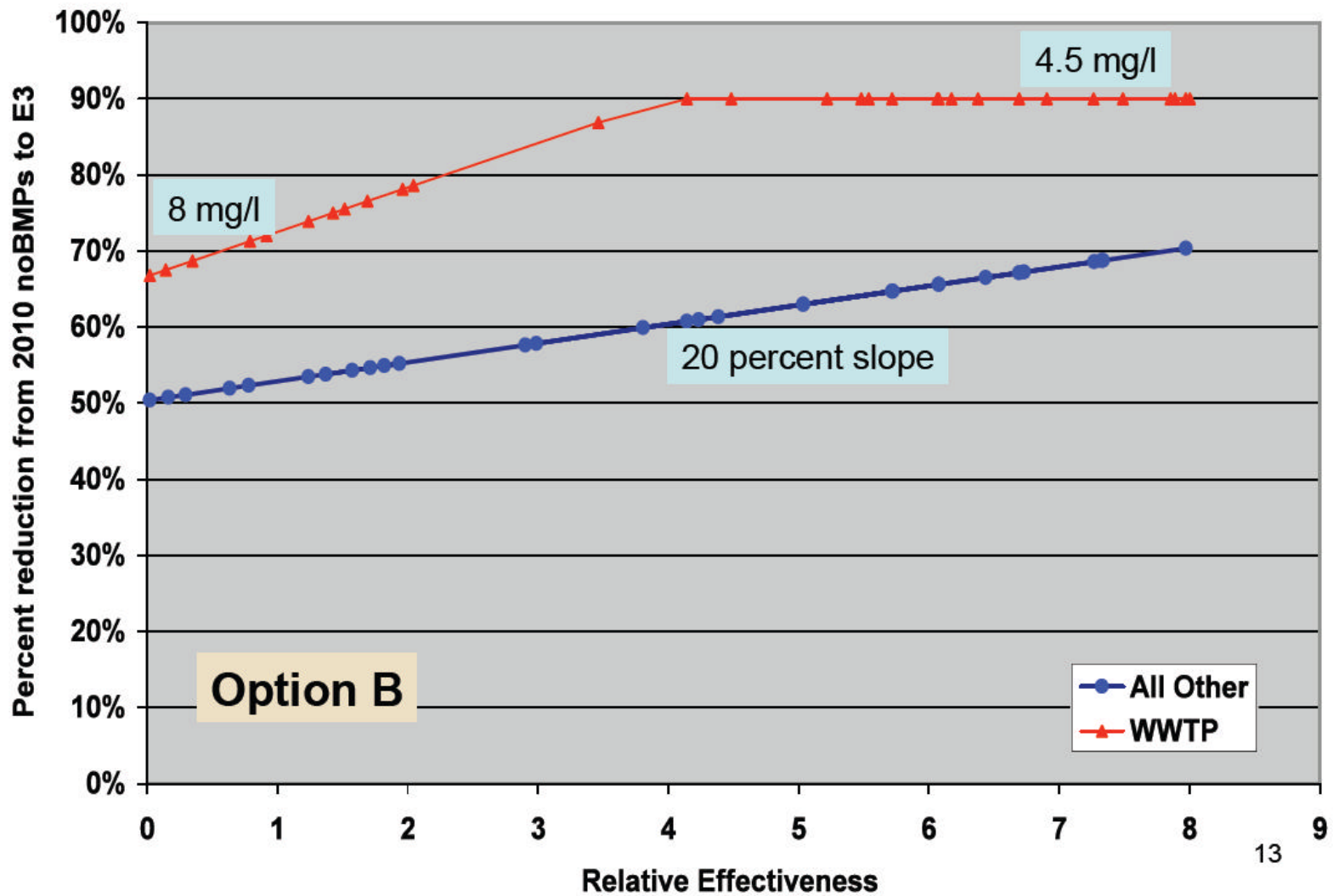
# Question & Answer







TN, p5.2, goal=200, WWTP = 4.5 - 8 mg/l, other: max=min+20%,



TP, p5.2, goal=15, WWTP = .22 - .54 mg/l, other: max=min+20%,

